FIXEdge Java Administration

Monitoring and management using remote shell

Introduction

FIX Edge Java includes an interactive shell that you can use to start, stop and query the FIX server and sessions. There are also useful commands to monitor the JVM.

This section introduces the main commands and features of the remote shell.

Connecting to remote shell

The connection is done on port `2000`.

Linux and OSX users can use `ssh` to connect to the remote shell. Windows users can download and install PuTTY.

```
$ ssh -p 2000 user@localhost
Password authentication
Password:
 _________  _____  ____  ____  _________  ______      ______  _________        _____     _  ____   ____  _
|_   ___  ||_   _||_  _||_  _||_   ___  ||_   _ `.  .' ___  ||_   __  |      |_   _|   / \|_  _| |_  _|/ \
  | |_ \_|  | |    \ \  / /    | |_ \_|  | | `. \/ .'   \_|  | |_ \_|        | |    / _ \ \ \   / / / _ \
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 _| |_     _| |_  _/ /'`\ \_  _| |__/ | _| |_.' /\ `.___]  |_| |__/ | _ | |__' | _/ /   \ \_\ ' /_/ /   \ \_
|_____|   |_____||____||____||_________||______.'  `._____.'|_________|(_)`.____.'|____| |____|\_/|____| |____|

Welcome to Dzmitry + !
It is Sun Oct 11 05:15:22 BRT 2015 now
```

The `bye` command disconnects from the shell.

```
% bye
Have a good day!

Connection to localhost closed.
```

Remote shell credentials

The shell uses Spring Security to handle login duties. Refer to the Administrative access configuration.

Remote shell commands

After establishing a connection, the administrative shell provides an environment with a set of specific commands.

Cluster management

Usage:

```
% cluster [-h | --help] COMMAND [ARGS]
```

The most commonly used cluster commands are:

- `stop` - stops the node with the given ID

```
% cluster stop FixEdgeJ1
Node with id [-1062725718] has stopped
```

- `info` - shows the node info

```
% cluster info FixEdgeJ1
name      leader id          address             local
-----------------------------------------------------
FixEdgeJ1 true   -1062725718 /192.168.1.100:5701 true
```

- `nodes` - displays the list of cluster nodes

```
% cluster nodes
Id             Name          Local          Leader          Address
-------------------------------------------------------------------------------
-1062725718    FixEdgeJ1     this           this            /192.168.1.100:5701
-1062725719    FixEdgeJ2                                    /192.168.1.101:5701
```

- `health` - shows the health status of the cluster

```
% cluster health
clusterName status numberOfNodes
--------------------------------
ClisterJ    green  2
```

- `elect` - elects the cluster leader (all other nodes will be switched to the backup mode)

```
% cluster elect FixEdgeJ2
Node with id [-1062725719] has become the cluster leader
```

FIX Server management

Usage:

```
% server [-h | --help] COMMAND [ARGS]
```

The most commonly used server commands are:

- `start` - starts the FIX server

```
% server start
Fix server successfully started
```

- `stop` - stops the FIX server

```
% server stop
Fix server successfully stopped
```

- `state` - shows the current state of the FIX server

```
% server state
STARTED
```

- `opts` - shows FIX server options such as port, state, etc.

```
% server opts
port state
----------
8911 STARTED
```

FIX Session management

Usage:

```
% session [-h | --help] COMMAND [ARGS]
```

The most commonly used session commands are:

- `tr` - sends a test request to the session
- `delete` - deletes a session
- `start` - starts a session
- `stop` - stops a session
- `load` - load a new FIX session from a config file
- `reload` - reload the FIX session from a config file (use the --force or -f attribute to reload the session which is currently in the CONNECTED state)
- `reset` - resets session sequence numbers
- `state` - shows the current session state
- `hb` - sends a heartbeat to the session
- `info` - returns session info
- `ls` - displays the list of all registered sessions

```
% session ls
Id           State         Type         SenderCompId    TargetCompId     Group
-------------------------------------------------------------------------------
iLinkTest    INACTIVE      INITIATOR    FECompId        iLink            []
session1     INACTIVE      ACCEPTOR     FECompId        Test1            [A]
session2     INACTIVE      ACCEPTOR     FECompId        Test2            [A, B, C]
```

- `send` - sends a FIXmessage to the session (tag delimiters in the message should be pipes '|' and the message should be in quotes)
- `seqnum` - sets a session's in/out sequence numbers
- `tobackup` - switches a session from primary to backup connection
- `toprimary` - switches a session from backup to primary connection
- `getstart` - shows the session's scheduled start time
- `getstop` - shows the session's scheduled stop time

JMS management

Usage:

```
% jms [-h | --help] COMMAND [ARGS]
```

The most commonly used JMS commands are:

- `start` - starts the JMS client
- `stop` - stops the JMS client
- `state` - shows the JMS client's current state

```
% jms state JMS_IN
CREATED
```

- `info` - returns JMS client info

- `send` - sends a FIX message to JMS clients (tag delimiters in the message should be pipes '|', JMS client should be Producer)
- `ls` - displays the list of all registered JMS clients

```
% jms ls
Id             State              Type                MessagingMode          ProviderURL                                 DestinationURI
JMS_IN         CREATED            Consumer            Queue                  tcp://localhost:61616  queueSend
JMS_OUT        CREATED            Producer            Queue                  tcp://localhost:61616  queueSend
```

Kafka management

Usage:

```
% kafka [-h | --help] COMMAND [ARGS]
```

The most commonly used Kafka commands are:

- `start` - starts the Kafka client
- `stop` - stops the Kafka client
- `state` - shows the Kafka client's current state

```
% kafka state consumer1
CONNECTED
```

- `info` - returns Kafka client info
- `send` - sends a FIX message to the Kafka client (tag delimiters in the message should be pipes '|')
- `ls` - displays the list of all registered Kafka clients

```
% kafka ls
Id              State               Type                Server              Topics
consumer1       CONNECTED           Consumer            localhost:9092      consumer
producer1       CREATED             Producer            localhost:9092      producer
```

Management over JMX

Connecting to remote shell

By default, JMX uses the 1099 port and the **'service:jmx:rmi://localhost/jndi/rmi://localhost:1099/fixedge'** URL for the connection. These parameters can be changed in the **fixedge.properties** file. Refer to the Administrative JMX configuration.

You can use the standard JConsole tool from Java SDK or any other JMX client to establish a remote connection with the provided parameters.

JMX credentials

The JMX connection uses Spring Security to handle login duties. Refer to the Administrative access configuration section.

JMX controls

FEJ provides the same controls and operations through JMX and the remote shell.

Cluster management

The Cluster Manager MBean represents a programming interface for control over cluster nodes and its state.

The object name of the MBean is:

`bean:name=clusterManager`

Operation	Parameters	Return Type	Description
nodeInfo	nodeId:java.lang.String	java.util.Map	Show node parameters
stopNode	nodeId:java.lang.String	boolean	Stop a cluster node with a given ID

nodes	Not applicable	java.util.List	List of cluster nodes
health	Not applicable	java.util.List	List of cluster health attributes (cluster name, number of nodes, cluster status)
electLeader	nodeId:java.lang.String	boolean	Make a node with a given ID a cluster leader (all other nodes will be switched to the backup mode)

FIX Server management

The FIX Server Manager MBean provides a programming interface for controlling the FIX server instance.

The object name of the MBean is:

`bean:name=fixServerManager`

Attribute	Type	Access	Description
State	java.lang.String	read-only	FIX server current state
Options	java.util.Map	read-only	FIX server options, for example, port, state, etc.

Operation	Parameters	Return Type	Description
startServer	Not applicable	boolean	Start the FIX server
stopServer	Not applicable	boolean	Stop the FIX server

FIX Session management

The FIX Session Manager MBean provides a programming interface for controlling FIX sessions.

The object name of the MBean is:

`bean:name=fixSessionManager`

Operation	Parameters	Return Type	Description
listSessions	Not applicable	java.util.List	List of FIX session descriptions
start	sessionId:java.lang.String	boolean	Start a FIX session
stop	sessionId:java.lang.String	boolean	Stop a FIX session
load	sessionId:java.lang.String	boolean	Load a new FIX session from the config file
reload	sessionId:java.lang.String, isForceReload:boolean	boolean	Reload a FIX session from the config file
getInfo	sessionId:java.lang.String	java.util.Map	Session parameters (sender, target, FIX version, connectivity parameters, etc.)
getState	sessionId:java.lang.String	java.lang.String	FIX session current state
sendMessage	sessionId:java.lang.String, message:java.lang.String	boolean	Send a FIX message to a given FIX session
sendTestRequest	sessionId:java.lang.String, testRequestId:java.lang.String	boolean	Send a TestRequest(1) message to a given FIX session
sendHeartbeat	sessionId:java.lang.String	boolean	Send the Heartbeat(0) message to a given FIX session
resetSeqNumbers	sessionId:java.lang.String, checkGapFillBefore:boolean	boolean	Reset given FIX session's sequence numbers
changeSeqNumbers	sessionId:java.lang.String, inValue:java.lang.String, outValue: java.lang.String	boolean	Change given FIX session's sequence numbers
getScheduledStartTime	sessionId:java.lang.String, dateFormat:java.lang.String	java.lang.String	Return next scheduled data for a FIX session start action in a given format
getScheduledStopTime	sessionId:java.lang.String, dateFormat:java.lang.String	java.lang.String	Return the next scheduled data for a FIX session stop action in a given format
switchToPrimaryConnection	sessionId:java.lang.String	boolean	Switch an initiator FIX session to the primary connection
switchToBackupConnection	sessionId:java.lang.String	boolean	Switch an initiator FIX session to the backup connection
delete	sessionId:java.lang.String	boolean	Remove a FIX session

JMS management

The JMS Manager MBean provides a programming interface for controlling JMS clients.

The object name of the MBean is:

`bean:name=jmsManager`

Operation	Parameters	Return Type	Description
listClients	Not applicable	java.util.List	List of JMS client descriptions
start	clientId:java.lang.String	boolean	Start the JMS client
stop	clientId:java.lang.String	boolean	Stop the JMS client
getClientParams	clientId:java.lang.String	java.util.Map	JMS parameters (connectivity parameters, etc.)
getClientState	clientId:java.lang.String	java.lang.String	JMS client current state
sendMessage	clientId:java.lang.String, message:java.lang.String	boolean	Send a FIX message to a given JMS client

Kafka management

The Kafka Manager MBean provides a programming interface for controlling Kafka clients.

The object name of the MBean is:

`bean:name=kafkaManager`

Operation	Parameters	Return Type	Description
listClients	Not applicable	java.util.List	List of Kafka client descriptions
start	clientId:java.lang.String	boolean	Start the Kafka client
stop	clientId:java.lang.String	boolean	Stop the Kafka client
getClientParams	clientId:java.lang.String	java.util.Map	Kafka parameters (connectivity parameters, etc.)
getClientState	clientId:java.lang.String	java.lang.String	Kafka client current state
sendMessage	clientId:java.lang.String, message:java.lang.String	boolean	Send a FIX message to a given Kafka client